

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Modernizing the E-rate Program for Schools and Libraries)	WC Docket No. 13-184
)	

COMMENTS OF AMPLIFY EDUCATION, INC.

Regina M. Keeney
Gil M. Strobel
LAWLER, METZGER, KEENEY & LOGAN, LLC
2001 K Street NW, Suite 802
Washington, DC 20006
202-777-7700
gstrobel@lawlermetzger.com

Attorneys for Amplify Education, Inc.

David Stevenson
Vice President, Government Relations
AMPLIFY EDUCATION, INC.
500 New Jersey Ave NW, Floor 6
Washington, DC 20001
202-509-9516

Antoinette Cook Bush
Executive Vice President,
Government Affairs
NEWS CORPORATION
300 New Jersey Ave. NW, Suite 900
Washington, DC 20001
202-465-8771

September 16, 2013

Table of Contents

I.	INTRODUCTION AND SUMMARY	1
II.	DISCUSSION	4
A.	Digital Teaching and Learning Are Transforming K-12 Education in the United States.....	4
B.	To Ensure the Deployment of Broadband Connections that Support Digital Learning, the Commission Should Adopt a Target Bandwidth of at Least 250 kbps per Student	7
C.	The Commission Should Eliminate the Distinctions between Priority 1 and Priority 2 Services	9
D.	The Commission’s Distribution of E-rate Funds Should Be Flexible Enough to Allow for Innovation by Individual Schools	11
III.	CONCLUSION	12

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)	
)	
Modernizing the E-rate Program for Schools)	WC Docket No. 13-184
and Libraries)	

COMMENTS OF AMPLIFY EDUCATION, INC.

Amplify Education, Inc. (“Amplify”) submits these comments in response to the Notice of Proposed Rulemaking released by the Federal Communications Commission (“FCC” or “Commission”) in the above-captioned proceeding seeking comment on proposals aimed at modernizing the schools and libraries universal service support mechanism (“E-rate”).¹

I. INTRODUCTION AND SUMMARY

Amplify is reimagining the way teachers teach and students learn in K-12 education. With headquarters in New York City and more than 1,200 employees across the country, Amplify is led by a team of digital education experts² and has provided innovative technology to the K-12 market for more than a decade. It is built on the foundation of Wireless Generation, the pioneer that brought mobile assessments and instructional analytics to schools across America.³

¹ *Modernizing the E-rate Program for Schools and Libraries*, WC Docket No. 13-184, Notice of Proposed Rulemaking, FCC 13-100 (rel. July 23, 2013) (“*NPRM*”).

² Amplify’s Chief Executive Officer is Joel Klein, former chancellor of the New York City Department of Education, which is the largest public school system in the United States, serving more than 1.1 million students.

³ In 2010, News Corporation acquired Wireless Generation, which was founded in 2001.

To date, Amplify has supported more than 200,000 educators and 3 million students in all 50 states as they begin their digital transition.

Amplify is making one-to-one mobile learning an affordable reality in K-12 education with a tablet-based platform designed specifically for schools. The Amplify Tablet bundles intuitive classroom tools and digital educational resources with wireless connectivity and mobile device management. It supports personalized learning, which allows students to learn through data-driven instruction that is tailored to meet their individual needs, and adaptive learning, which involves interactive experiences that respond and adjust to a student's actions. Amplify also provides training, project management and customer support to help ease—and accelerate—a school's transition to mobile-based learning.

Amplify is also reinventing teaching and learning in the core subjects of English-language arts, math and science. The Amplify Curriculum is written specifically to meet the rigor of the Common Core State Standards,⁴ so that students are prepared for college and career success. Amplify's digital curriculum, developed in collaboration with top game designers, academic thought leaders and Hollywood screenwriters, delivers groundbreaking learning experiences that deeply engage students. The curriculum combines interactive, game-like experiences with instructional analytics, all driven by adaptive technologies that respond to individual students' needs as those needs evolve. With its array of digital products and services,

⁴ See Common Core State Standards Initiative, *Implementing the Common Core State Standards*, <http://www.corestandards.org/> (viewed Sept. 16, 2013) (“The Common Core State Standards provide a consistent, clear understanding of what students are expected to learn, so teachers and parents know what they need to do to help them. The standards are designed to be robust and relevant to the real world, reflecting the knowledge and skills that our young people need for success in college and careers.”).

Amplify is leading the way in data-driven instruction, breaking new ground in mobile learning, and setting the standard for next-generation digital curriculum and assessment.

Amplify is not affiliated with a school or library and does not receive any money from the E-rate Fund. Nonetheless, Amplify views the Commission's instant proceeding as a critical opportunity to reconfigure the E-rate program in a way that substantially accelerates high-quality digital learning for America's K-12 students. Amplify's extensive experience developing and deploying digital learning resources has provided it with valuable insights into how schools can maximize the value of digital learning. In addition, Amplify's history with digital learning tools has underscored the importance of "future proofing" products and networks to make sure that technology investments do not become obsolete almost as soon as they are made.

Based on both its experience in the field and its recent cutting-edge research, development and pilot testing activities, Amplify believes that the fundamental goal of the Commission's E-rate reforms should be to ensure the reliable delivery of high-bandwidth Internet access directly to students in the classroom. Combining its own observations with those of others, Amplify has been able to develop an informed estimate of the bandwidth that students will need to take full advantage of the currently available and anticipated digital learning tools. Specifically, Amplify estimates that school districts will need to provide an average of at least 250 kbps of bandwidth per student if they are to take full advantage of the digital and online educational resources available today and likely to be widely used in the near future. This per-student bandwidth benchmark requires not only high-capacity connections to school buildings, but also efficient, high-quality distribution mechanisms within buildings, such as well-designed, maintained and actively managed Wi-Fi networks.

To facilitate the accelerated deployment of broadband services to K-12 classrooms, the Commission should eliminate the distinction between priority 1 and priority 2 services. Instead, the E-rate program should focus holistically on the bundle of external and internal connections needed to deliver the requisite bandwidth to individual students and devices throughout each school building. The Commission also should provide E-rate applicants with the flexibility to deploy the internal network architecture that will provide students with the most efficient access to the high-speed bandwidth that today's digital and online educational tools demand. Similarly, the Commission should provide schools with the funding necessary to cover the substantial upfront and recurring costs associated with the deployment of such high-bandwidth networks, including schools' internal connections.

By taking these steps to foster the delivery of advanced broadband services to individual students in our nation's classrooms, the Commission can unlock the full potential of digital learning for students across the United States.

II. DISCUSSION

A. Digital Teaching and Learning Are Transforming K-12 Education in the United States

As explained below, three key technology trends are converging to trigger a dramatic change toward digital teaching and learning in K-12 education in the United States: (1) the deployment of higher bandwidth networks, (2) the emergence of device and software platforms that provide true one-to-one learning experiences, and (3) the development of improved software that provides rich learning experiences. These trends are revolutionizing the way students are learning. The Commission's decision to undertake a comprehensive review of its existing E-rate program is well-timed in light of the ongoing paradigm shift from traditional class-wide learning

to more individualized digital education that is tailored to each student's specific needs. The FCC's efforts to modernize the E-rate program will be successful only if they effectively facilitate the transition to digital learning being brought about by these trends.

Bandwidth Deployment. Greater bandwidth than ever before can now be delivered to schools and technology exists to distribute that bandwidth efficiently to classrooms throughout school buildings. The development and deployment of fiber and other bandwidth-intensive technologies around the country make it possible to bring vast amounts of data to schools' front doors. The bandwidth can then be distributed throughout the school building via wire-based internal connections and, with the emergence of Wi-Fi and other similar technologies, schools can now deliver that bandwidth wirelessly directly to devices used by individual students. As a result, teachers can take advantage of multimedia instruction, and students can stream educational videos and other high-bandwidth content. Where sufficient bandwidth is available, students are able to access learning tools that enable them to research, review, and synthesize sources of information in a way that would have been hard to imagine just a decade ago.

The Emergence of New Devices and Platforms. Recently developed device and software platforms (including the Amplify Tablet) are able to support truly personalized, one-to-one learning in classrooms, at home and elsewhere. By offering schools the ability to provide data privacy, device security, controlled access to the Internet, and enterprise configuration and management features, these devices create a safe learning platform for students to use both in the classroom and at home. Students can collaborate via chat during study hall, play educational games on the bus ride home, and submit homework late in the evening, using the same tools and resources they use in class. Compared to more traditional computer labs or classroom-based

deployment models, which allow only a limited number of students to have access to computers for a limited period of time during the school day, true one-to-one computing better enables individualized instruction and facilitates collaboration, creation and learning.

Improved Software. As a result of substantial efforts on the part of software developers (including Amplify), digital learning tools are beginning to match the quality and richness of experience that students previously associated only with recreational gaming and media systems. Until recently, most students were likely to use simple Flash-based games⁵ in the computer lab at school and then go home to immersive games involving sports or complex multi-player worlds. Similarly, students would rely on rudimentary collaboration tools in the classroom (such as multiple choice clickers) and then enjoy group chat streams and interest-based collaborations at home. To change this dynamic, the K-12 software industry is now making the investments necessary to meet the needs and expectations of children who are sophisticated users of gaming environments, collaboration tools, and digital media platforms.

To take advantage of this confluence of factors and provide American teachers and students with immersive digital learning experiences, the Commission should revise the E-rate program to promote greater bandwidth availability and the flexible deployment of high-quality network architecture within schools. The E-rate program should ensure that schools have access to efficient broadband services that will deliver the necessary bandwidth not only to the classroom, but to individual students and their devices.

⁵ “Flash games” refer to any of a number of online games that use the Flash® software developed by Macromedia and owned by Adobe. *See, e.g.*, <http://www.flashgames247.com/>.

B. To Ensure the Deployment of Broadband Connections that Support Digital Learning, the Commission Should Adopt a Target Bandwidth of at Least 250 kbps Per Student

In the *NPRM*, the Commission seeks comment on what performance measures it should adopt to help ensure that eligible schools and libraries have affordable access to high-capacity broadband at speeds that will support digital learning.⁶ As the Commission points out, one potential measure of progress toward this goal would be to benchmark the performance of schools' and libraries' broadband connections against specific speed targets.⁷

As an initial matter, Amplify believes that it is critical that any target speed for broadband connections be focused on the bandwidth that is available to each individual teacher and student in their classrooms and other locations within a school. The level of bandwidth delivered to a school building is virtually meaningless if that bandwidth cannot be distributed efficiently to the places within the school where students actually learn. Accordingly, the Commission should focus its E-rate reforms on measures designed to promote and support the deployment of full broadband capability directly to students. Thus, for example, any bandwidth benchmarks should measure the connectivity available to individual students in classrooms, rather than the capacity of the connection to the school building.

⁶ *NPRM* ¶ 20.

⁷ *Id.* ¶ 21. The *NPRM* specifically mentions ConnectED's target of at least 100 Mbps to most schools and libraries within five years, as well as the State Education Technology Directors Association's ("SETDA's") recommendation that K-12 schools have Internet connections of at least 100 Mbps per 1,000 users by the 2014-15 school year (equivalent to 100 kbps per student) and at least 1 Gbps Internet access per 1,000 users by the 2017-18 school year (1 Mbps per student). *Id.* ¶ 22.

As described above, a confluence of technological factors is now spurring a much more extensive deployment of digital products and services in classrooms across the United States, and many schools are moving to a full one-to-one deployment of devices for all students, particularly at the higher grade levels where independent study is more prevalent and more media content is consumed.⁸ Based on classroom experience, Amplify has developed estimates of the bandwidth that would be required in classrooms for different individual learning tools (*e.g.*, video content, shared research) and at different points in the educational process (*e.g.*, elementary vs. high school). These estimates are based on pilot programs that Amplify and others have conducted around the country to observe how teachers use bandwidth in their classrooms on a day-to-day basis,⁹ and reflect the average bandwidth schools will consume once they have implemented a full one-to-one learning curriculum. Using the data from these pilot programs and observations of the way teachers and students are using hardware and software in their classrooms, Amplify estimates that schools will need to achieve at least 250 kbps per student on a district-wide basis if they are to take full advantage of the resources available to them.

Thus, Amplify recommends that the Commission establish a benchmark for E-rate applicants to provide at least 250 kbps per student. Anything less than that threatens to deprive students of effective access to valuable digital and online education resources that are essential to modern educational efforts.

⁸ See *id.* ¶ 217 (requesting comment on whether the Commission should require schools seeking support for high-capacity broadband to plan for providing a device to every student).

⁹ The pilot programs involved nearly 4,000 students and over 300 teachers in more than a dozen school districts located around the country.

C. The Commission Should Eliminate the Distinctions Between Priority 1 and Priority 2 Services

As a general matter, Amplify favors providing schools with the flexibility to design and deploy internal networks that are responsive to their unique circumstances. Thus, the Commission should not mandate any particular network architecture for the delivery of high-capacity broadband within schools. Nonetheless, Amplify's extensive experience working with schools has shown that certain internal network components are likely to prove essential to the efficient and reliable delivery of high-bandwidth content directly to students.¹⁰ For example, schools will need to deploy extensive inside-wiring, coupled with wireless access points ("WAPs"), femtocells or similar technology in individual classrooms, to optimize the distribution of available bandwidth and ensure efficient throughput from the initial connection to the building to individual students' devices in the classroom. Similarly, caching technologies can help schools make efficient use of available bandwidth by making it easier to access the content that is most in demand. In fact, Amplify estimates that by including local caching capability at the network edge (closer to the school district's central connection to the public network), school districts can reduce their bandwidth needs by as much as 30-40%.

Amplify urges the Commission to promote the deployment of these network components by making appropriate adjustments to the E-rate program's funding priorities.¹¹ As the Commission notes in the *NPRM*, the E-rate program in recent years has been unable to fund

¹⁰ See *NPRM* ¶ 84 (asking parties to provide information regarding the most efficient and cost-effective network architectures for deployment of high-capacity broadband, including data on the nature of internal networks implemented within schools and libraries).

¹¹ See *id.* ¶ 65 (asking whether the existing priority structure should be revised as part of its effort to ensure that schools and libraries have access to affordable high capacity broadband).

billions of dollars in priority 2 requests from applicants seeking support for internal connections.¹² As a result, E-rate recipients that lacked the resources to provide full funding for those connections may have elected not to invest in the internal connections needed to make efficient use of the priority 1 services for which they received funding.¹³

In revising the E-rate program, the Commission should address the program's harmful bias against priority 2 services by eliminating the distinction between priority 1 and priority 2 services. Given the nature of broadband demand within today's schools, applicants' requests for support for internal connections and maintenance of those connections should no longer have secondary funding status. As explained above, items that are currently classified as priority 2 services, such as WAPs, caching and other network management tools, are critical to a school's ability to ensure that individual students have access to the bandwidth they need to take advantage of available digital learning tools.¹⁴ Thus, rather than preserving the existing artificial regulatory classifications, the Commission should focus holistically on what is needed to provide at least 250 kbps per student in each classroom – a combination or “bundle” of high-speed connections to the building and internal networks capable of distributing that bandwidth efficiently throughout the building.¹⁵ In short, the Commission should allow schools to tailor

¹² *Id.* ¶ 83.

¹³ *Id.*; see also *id.* ¶ 62 (“In the early years, the E-rate program was able to fund a substantial percentage of the priority two requests that it received, but more recently, the vast majority of requests for priority two services have gone unfunded.”).

¹⁴ Consistent with this position, Amplify believes that the Commission should focus funding on the newer high-capacity wireless routers that are needed to allow multiple simultaneous high-capacity connections in a classroom environment. *Id.* ¶ 84.

¹⁵ The FCC should also provide funding for caching and other tools and devices that effectively reduce bandwidth demand.

their applications to meet their individual needs through a combination of connections to the building, internal distribution mechanisms, and network management tools, so long as their proposals will distribute the requisite bandwidth (250 kbps/student) in a reasonably efficient manner.

D. The Commission’s Distribution of E-rate Funds Should Be Flexible Enough to Allow for Innovation by Individual Schools

In the *NPRM*, the Commission proposes to require all schools within a school district to submit applications by district, rather than by individual school or groups of schools within the same district, and to use the average discount rate for the entire school district rather than the weighted average for each school building.¹⁶ While Amplify agrees that funding for certain network components should be distributed at the district level (including caching capability and facilities delivering bandwidth to the school), the Commission’s application and distribution process should be flexible enough to allow for continued innovation by individual schools within a school district. In Amplify’s experience, cutting-edge deployments by such “pioneer” schools can spark similar efforts by other schools in their districts, leading to greater innovation and efficiency.

¹⁶ *NPRM* ¶ 131.

III. CONCLUSION

For the reasons described above, Amplify urges the Commission to take the steps necessary to ensure that students have access to the minimum bandwidth necessary to take full advantage of the digital and online educational resources currently available to them.

Respectfully submitted,

/s/ David Stevenson

David Stevenson
Vice President, Government Relations
AMPLIFY EDUCATION, INC.
500 New Jersey Ave NW, Floor 6
Washington, DC 20001
202-509-9516

Regina M. Keeney
Gil M. Strobel
LAWLER, METZGER, KEENEY & LOGAN, LLC
2001 K Street NW, Suite 802
Washington, DC 20006
202-777-7700
gstrobel@lawlermetzger.com

Attorneys for Amplify Education, Inc.

September 16, 2013

Antoinette Cook Bush
Executive Vice President,
Government Affairs
NEWS CORPORATION
300 New Jersey Ave. NW, Suite 900
Washington, DC 20001
202-465-8771

Certificate of Service

I hereby certify that on this 16th day of September, 2013, I caused true and correct copies of the foregoing Comments to be mailed by electronic mail to:

Best Copy and Printing, Inc.
fcc@bcpiweb.com

Lisa Hone
Telecommunications Access Policy Division
Wireline Competition Bureau
Federal Communications Commission
Lisa.Hone@fcc.gov

Charles Tyler
Telecommunications Access Policy Division
Wireline Competition Bureau
Federal Communications Commission
Charles.Tyler@fcc.gov

/s/ Ruth E. Holder
Ruth E. Holder